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SEQUENCE LISTING

<110> ULLRICH, Axel
NAYLER, Oliver

<120> CLK PROTEIN KINASES AND RELATED PRODUCTS AND METHODS

<130> 038602/0431

<140> US 09/127,248
<141> 1998-07-31

<150> PCT/WO97/48723
<151> 1997-12-24

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<151> 1997-06-17

<150> US 08/877,150
<151> 1997-06-17

<150> US 60/034,286
<151> 1996-12-19

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35 40 45

Ser Lys Thr Thr Asp Ser Tyr Tyr Leu Glu Ser Arg Ser Ile Asn Glu
50 55 60

Lys Ala Tyr His Ser Arg Arg Tyr Val Asp Glu Tyr Arg Asn Asp Tyr
65 70 75 80

Met Gly Tyr Glu Pro Gly His Pro Tyr Gly Glu Pro Gly Ser Arg Tyr
85 90 95

Gln Met His Ser Ser Lys Ser Ser Gly Arg Ser Gly Arg Ser Ser Tyr
100 105 110

Lys Ser Lys His Arg Ser Arg His His Thr Ser Gln His His Ser His
115 120 125

Gly Lys Ser His Arg Arg Lys Arg Ser Arg Ser Val Glu Asp Asp Glu
130 135 140

Glu Gly His Leu Ile Cys Gln Ser Gly Asp Val Leu Ser Ala Arg Tyr
145 150 155 160

Glu Ile Val Asp Thr Leu Gly Glu Gly Ala Phe Gly Lys Val Val Glu
165 170 175

Cys Ile Asp His Lys Val Gly Gly Arg Arg Val Ala Val Lys Ile Val
180 185 190

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195 200 205

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210 215 220

Gln Met Leu Glu Trp Phe Glu His Arg Gly His Ile Cys Ile Val Phe
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Glu Leu Leu Gly Leu Ser Thr Tyr Asp Phe Ile Lys Glu Asn Ser Phe
245 250 255

Leu Pro Phe Arg Met Asp His Ile Arg Lys Met Ala Tyr Gln Ile Cys
260 265 270

Lys Ser Val Asn Phe Leu His Ser Met Lys Leu Thr His Thr Asp Leu
275 280 285

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290 295 300

Asn Pro Lys Met Lys Arg Asp Glu Arg Thr Ile Val Asn Pro Asp Ile
305 310 315 320

Lys Val Val Asp Phe Gly Ser Ala Thr Tyr Asp Asp Glu His His Ser
325 330 335

Thr Leu Val Ser Thr Arg His Tyr Arg Ala Pro Glu Val Ile Leu Ala
340 345 350

Leu Gly Trp Ser Gln Pro Cys Asp Val Trp Ser Ile Gly Cys Ile Leu
355 360 365

Ile Glu Tyr Tyr Leu Gly Phe Thr Val Phe Pro Thr His Asp Ser Arg
370 375 380

Glu His Leu Ala Met Met Glu Arg Ile Leu Gly Pro Leu Pro Lys His
385 390 395 400

Met Ile Gln Lys Thr Arg Lys Arg Arg Tyr Phe His His Asp Arg Leu
405 410 415

Asp Trp Asp Glu His Ser Ser Ala Gly Arg Tyr Val Ser Arg Arg Cys
420 425 430

Lys Pro Leu Lys Glu Phe Met Leu Ser Gln Asp Ala Glu His Glu Phe
435 440 445

Leu Phe Asp Leu Val Gly Lys Ile Leu Glu Tyr Asp Pro Ala Lys Arg
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<211> 499
<212> PRT
<213> Mus musculus

<400> 21

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35 40 45

Asp Ser Tyr His Val Arg Ser Arg Ser Ser Tyr Asp Asp His Ser Ser
50 55 60

Asp Arg Arg Leu Tyr Asp Arg Arg Tyr Cys Gly Ser Tyr Arg Arg Asn
65 70 75 80

Asp Tyr Ser Arg Asp Arg Gly Glu Ala Tyr Tyr Asp Thr Asp Phe Arg
85 90 95

Gln Ser Tyr Glu Tyr His Arg Glu Asn Ser Ser Tyr Arg Ser Gln Arg
100 105 110

Ser Ser Arg Arg Lys His Arg Arg Arg Arg Arg Arg Ser Arg Thr Phe
115 120 125

Ser Arg Ser Ser Ser His Ser Ser Arg Arg Ala Lys Ser Val Glu Asp
130 135 140

Asp Ala Glu Gly His Leu Ile Tyr His Val Gly Asp Trp Leu Gln Glu
145 150 155 160

Arg Tyr Glu Ile Val Ser Thr Leu Gly Glu Gly Thr Ser Gly Arg Val
165 170 175

Val Gln Cys Val Asp His Arg Arg Gly Gly Thr Arg Val Ala Leu Lys
180 185 190

Ile Ile Lys Asn Val Glu Lys Tyr Lys Glu Ala Ala Arg Leu Glu Ile
195 200 205

Asn Val Leu Glu Lys Ile Asn Glu Lys Asp Pro Asp Asn Lys Asn Leu
210 215 220

Cys Val Gln Met Phe Asp Trp Phe Asp Tyr His Gly His Met Cys Ile
225 230 235 240

Ser Phe Glu Leu Leu Gly Leu Ser Thr Phe Asp Phe Leu Lys Asp Asn
245 250 255

Asn Tyr Leu Pro Tyr Pro Ile His Gln Val Arg His Met Ala Phe Gln
260 265 270

Leu Cys Gln Ala Val Lys Phe Leu His Asp Asn Lys Leu Thr His Thr
275 280 285

Asp Leu Lys Pro Glu Asn Ile Leu Phe Val Asn Ser Asp Tyr Glu Leu
290 295 300

Thr Tyr Asn Leu Glu Lys Lys Arg Asp Glu Arg Ser Val Lys Ser Thr
305 310 315 320

Ala Val Arg Val Val Asp Phe Gly Ser Ala Thr Phe Asp His Glu His
325 330 335

His Ser Thr Ile Val Ser Thr Arg His Tyr Arg Ala Pro Glu Val Ile
340 345 350

Leu Glu Leu Gly Trp Ser Gln Pro Cys Asp Val Trp Ser Ile Gly Cys
355 360 365

Ile Ile Phe Glu Tyr Tyr Val Gly Phe Thr Leu Phe Gln Thr His Asp
370 375 380

Asn Arg Glu His Leu Ala Met Met Glu Arg Ile Leu Gly Pro Val Pro
385 390 395 400

Ser Arg Met Ile Arg Lys Thr Arg Lys Gln Lys Tyr Phe Tyr Arg Gly
405 410 415

Arg Leu Asp Trp Asp Glu Asn Thr Ser Ala Gly Arg Tyr Val Arg Glu
420 425 430

Asn Cys Lys Pro Leu Arg Arg Tyr Leu Thr Ser Glu Ala Glu Asp His
435 440 445

His Gln Leu Phe Asp Leu Ile Glu Asn Met Leu Glu Tyr Glu Pro Ala
450 455 460

Lys Arg Leu Thr Leu Gly Glu Ala Leu Gln His Pro Phe Phe Ala Cys
465 470 475 480

Leu Arg Thr Glu Pro Pro Asn Thr Lys Leu Trp Asp Ser Ser Arg Asp
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<212> DNA
<213> Mus musculus

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cgctcctggt caagtagcag tgaccggaca aggcggcggc ggagggagga cagctaccac 180

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acagactttc ggcagtccta tgaataccat cgagagaaca gcagttaccg aagccagcgc 360

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gaaaggatcc tgggtcctgt cccttctcgg atgatcagaa agacaagaaa acagaaatat 1260

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<213> Mus musculus

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35 40 45

Ser Arg Ser His Asp Arg Ile Pro Tyr Gln Arg Arg Tyr Arg Glu His
50 55 60

Arg Asp Ser Asp Thr Tyr Arg Cys Glu Glu Arg Ser Pro Ser Phe Gly
65 70 75 80

Glu Asp Cys Tyr Gly Ser Ser Arg Ser Arg His Arg Arg Arg Ser Arg
85 90 95

Glu Arg Ala Pro Tyr Arg Thr Arg Lys His Ala His His Cys His Lys
100 105 110

Arg Arg Thr Arg Ser Cys Ser Ser Ala Ser Ser Arg Ser Gln Gln Ser
115 120 125

Ser Lys Arg Ser Ser Arg Ser Val Glu Asp Asp Lys Glu Gly His Leu
130 135 140

Val Cys Arg Ile Gly Asp Trp Leu Gln Glu Arg Tyr Glu Ile Val Gly
145 150 155 160

Asn Leu Gly Glu Gly Thr Phe Gly Lys Val Val Glu Cys Leu Asp His
165 170 175

Ala Arg Gly Lys Ser Gln Val Ala Leu Lys Ile Ile Arg Asn Val Gly
180 185 190

Lys Tyr Arg Glu Ala Ala Arg Leu Glu Ile Asn Val Leu Lys Lys Ile
195 200 205

Lys Glu Lys Asp Lys Glu Asn Lys Phe Leu Cys Val Leu Met Ser Asp
210 215 220

Trp Phe Asn Phe His Gly His Met Cys Ile Ala Phe Glu Leu Leu Gly
225 230 235 240

Lys Asn Thr Phe Glu Phe Leu Lys Glu Asn Asn Phe Gln Pro Tyr Pro
245 250 255

Leu Pro His Val Arg His Met Ala Tyr Gln Leu Cys His Ala Leu Arg
260 265 270

Phe Leu His Glu Asn Gln Leu Thr His Thr Asp Leu Lys Pro Glu Asn
275 280 285

Ile Leu Phe Val Asn Ser Glu Phe Glu Thr Leu Tyr Asn Glu His Lys
290 295 300

Ser Cys Glu Glu Lys Ser Val Lys Asn Thr Ser Ile Arg Val Ala Asp
305 310 315 320

Phe Gly Ser Ala Thr Phe Asp His Glu His His Thr Thr Ile Val Ala
325 330 335

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340 345 350

Gln Pro Cys Asp Val Trp Ser Ile Gly Cys Ile Leu Phe Glu Tyr Tyr
355 360 365

Arg Gly Phe Thr Leu Phe Gln Thr His Glu Asn Arg Glu His Leu Val
370 375 380

Met Met Glu Lys Ile Leu Gly Pro Ile Pro Ser His Met Ile His Arg
385 390 395 400

Thr Arg Lys Gln Lys Tyr Phe Tyr Lys Gly Gly Leu Val Trp Asp Glu
405 410 415

Asn Ser Ser Asp Gly Arg Tyr Val Lys Glu Asn Cys Lys Pro Leu Lys
420 425 430

Ser Tyr Met Leu Gln Asp Ser Leu Glu His Val Gln Leu Phe Asp Leu
435 440 445

Met Arg Arg Met Leu Glu Phe Asp Pro Ala Gln Arg Ile Thr Leu Ala
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ccgtaccgta cccgcaagca tgcccaccac tgtcacaaac gccgtaccag gtcttgtagc 420

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gtccggcaca tggcctacca gctctgtcat gcccttagat ttctacacga gaaccagctg 900

acccacacag acttgaagcc agagaacatc ttgtttgtga attctgagtt tgaaaccctc 960

tacaatgagc acaagagctg cgaggagaag tcagtgaaga acaccagcat ccgagtggca 1020

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ttataataaa gtgttcttac tgtttgtaaa aaaaaaaaaa aaaaaaa 1787

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<211> 481
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<213> Mus musculus

<400> 25

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Ser His Ser Ser Thr Gln Glu Asn Arg His Cys Lys Pro His His Gln
35 40 45

Phe Lys Asp Ser Asp Cys His Tyr Leu Glu Ala Arg Cys Leu Asn Glu
50 55 60

Arg Asp Tyr Arg Asp Arg Arg Tyr Ile Asp Glu Tyr Arg Asn Asp Tyr
65 70 75 80

Cys Glu Gly Tyr Val Pro Arg His Tyr His Arg Asp Val Glu Ser Thr
85 90 95

Tyr Arg Ile His Cys Ser Lys Ser Ser Val Arg Ser Arg Arg Ser Ser
100 105 110

Pro Lys Arg Lys Arg Asn Arg Pro Cys Ala Ser His Gln Ser His Ser
115 120 125

Lys Ser His Arg Arg Lys Arg Ser Arg Ser Ile Glu Asp Asp Glu Glu
130 135 140

Gly His Leu Ile Cys Gln Ser Gly Asp Val Leu Arg Ala Arg Tyr Glu
145 150 155 160

Ile Val Asp Thr Leu Gly Glu Gly Ala Phe Gly Lys Val Val Glu Cys
165 170 175

Ile Asp His Gly Met Asp Gly Leu His Val Ala Val Lys Ile Val Lys
180 185 190

Asn Val Gly Arg Tyr Arg Glu Ala Ala Arg Ser Glu Ile Gln Val Leu
195 200 205

Glu His Leu Asn Ser Thr Asp Pro Asn Ser Val Phe Arg Cys Val Gln
210 215 220

Met Leu Glu Trp Phe Asp His His Gly His Val Cys Ile Val Phe Glu
225 230 235 240

Leu Leu Gly Leu Ser Thr Tyr Asp Phe Ile Lys Glu Asn Ser Phe Leu
245 250 255

Pro Phe Gln Ile Asp His Ile Arg Gln Met Ala Tyr Gln Ile Cys Gln
260 265 270

Ser Ile Asn Phe Leu His His Asn Lys Leu Thr His Thr Asp Leu Lys
275 280 285

Pro Glu Asn Ile Leu Phe Val Lys Ser Asp Tyr Val Val Lys Tyr Asn
290 295 300

Ser Lys Met Lys Arg Asp Glu Arg Thr Leu Lys Asn Thr Asp Ile Lys
305 310 315 320

Val Val Asp Phe Gly Ser Ala Thr Tyr Asp Asp Glu His His Ser Thr
325 330 335

Leu Val Ser Thr Arg His Tyr Arg Ala Pro Glu Val Ile Leu Ala Leu
340 345 350

Gly Trp Ser Gln Pro Cys Asp Val Trp Ser Ile Gly Cys Ile Leu Ile
355 360 365

Glu Tyr Tyr Leu Gly Phe Thr Val Phe Gln Thr His Asp Ser Lys Glu
370 375 380

His Leu Ala Met Met Glu Arg Ile Leu Gly Pro Ile Pro Ala His Met
385 390 395 400

Ile Gln Lys Thr Arg Lys Arg Lys Tyr Phe His His Asn Gln Leu Asp
405 410 415

Trp Asp Glu His Ser Ser Ala Gly Arg Tyr Val Arg Arg Arg Cys Lys
420 425 430

Pro Leu Lys Glu Phe Met Leu Cys His Asp Glu Glu His Glu Lys Leu
435 440 445

Phe Asp Leu Val Arg Arg Met Leu Glu Tyr Asp Pro Ala Arg Arg Ile
450 455 460

Thr Leu Asp Glu Ala Leu Gln His Pro Phe Phe Asp Leu Leu Lys Arg
465 470 475 480

Lys

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<211> 1549
<212> DNA
<213> Mus musculus

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gaatacagaa atgactactg cgaaggatat gttccaagac attaccatag agacgttgaa 360

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tttgacttat taaaaaggaa atgagtggga gtcagggcgg ccgcaccgc 1549